

## **ABSTRACT**

A coordinate measuring instrument includes a horizontally X-Y displaceable measurement stage for receiving a substrate with a feature that is to be measured, an illumination system, and a detector device. The illumination system includes a light source, an optical fiber bundle, a coupling-in optical system before the optical fiber bundle, a coupling-out optical system after the optical fiber bundle, an illuminating optical system for illuminating an image field, and a homogenizing optical system which is arranged between said coupling-out optical system and said illuminating optical system. The homogenizing optical system homogenizes the non-uniform intensity distribution in the image field of the light emerging from the optical fiber bundle. The light of said light source is picked off via said coupling-in optical system with a large numerical entrance aperture, and is coupled into said optical fiber bundle. The detector device determines the values of X and Y coordinates of the feature within the X-Y displaceable measurement stage.